

Applicant: Simon Piers Robinson
Serial No.: 10/619,646
Filed : July 15, 2003
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In the claims

Please amend the claims by replacing all prior versions of the claims with the listing of claims below pursuant to 37 C.F.R. §1.121.

1-54. (Cancelled)

55. (Currently Amended) An isolated nucleic acid molecule that encodes a PPO polypeptide of lettuce comprising nucleotides in:

- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
- (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
- (iii) a nucleotide sequence that encodes a copper-binding site of ~~an~~ the amino acid sequence of (ii); or
- (iv) a the nucleotide sequence that is complementary to (i) or (ii) or (iii).

56. (Currently Amended) The isolated nucleic acid molecule of claim 55, wherein the nucleotides are in:

- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
- (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30; or
- (iii) a the nucleotide sequence that is complementary to (i) or (ii) ~~or (iii)~~.

57. (Currently Amended) A recombinant vector comprising a nucleic acid molecule comprising nucleotides in:

- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
- (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
- (iii) a nucleotide sequence that encodes a copper-binding

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- site of ~~an~~ the amino acid sequence of (ii); or
(iv) a the nucleotide sequence that is complementary to (i)
or (ii) or (iii),
within the vector molecule.

58. (Previously Presented) The recombinant vector of claim 57 wherein the vector is a plasmid expression vector.
59. (Previously Presented) The recombinant vector of claim 58 wherein the plasmid expression vector is Bluescript SK+.
60. (Previously Presented) The recombinant vector of claim 57, wherein the vector is a binary vector suitable for introducing into a plant cell, tissue or organ.
61. (Previously Presented) The recombinant vector of claim 57, wherein the vector is capable of being replicated and the PPO-encoding nucleic acid is capable of being transcribed and translated in a unicellular organism or in a plant.
62. (Currently Amended - Withdrawn) A transformed plant, plant part, progeny or propagule thereof, comprising a non-endogenous nucleic acid molecule that encodes a PPO polypeptide of lettuce comprising nucleotides in:
- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
 - (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
 - (iii) a nucleotide sequence that encodes a copper-binding site of ~~an~~ the amino acid sequence of (ii); or
 - (iv) a the nucleotide sequence that is complementary to (i) or (ii) or (iii).

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63. (Currently Amended - Withdrawn) The transformed plant of claim 62, wherein the nucleotides in the nucleic acid molecule are in:
- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
 - (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30; or
 - (iii) a the nucleotide sequence that is complementary to (i) or (ii) ~~or (iii)~~.
64. (Withdrawn) The transformed plant, plant part, progeny or propagule thereof of claim 62, wherein the nucleic acid molecule is part of a recombinant vector.
65. (Withdrawn) The transformed plant, plant part, progeny or propagule thereof of claim 63, wherein the plant is lettuce and the nucleic acid molecule is at least expressed in the lettuce leaf.
66. (Currently Amended - Withdrawn) A process of making the transformed plant, plant part, progeny or propagule thereof of claim 62, comprising introducing into a plant, cell, tissue or organ thereof a nucleic acid molecule encoding a PPO polypeptide of lettuce comprising nucleotides in:
- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
 - (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
 - (iii) a nucleotide sequence that encodes a copper-binding site of the amino acid sequence of (ii); or
 - (iv) a the nucleotide sequence that is complementary to (i) or (ii) or (iii).

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67. (Currently Amended - Withdrawn) A process of making a lettuce plant, cell, tissue or organ thereof, comprising introducing a nucleic acid molecule which hybridizes to a nucleic acid molecule in the lettuce plant, cell, tissue or organ thereof selected from the group consisting of:
- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
 - (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
 - (iii) a nucleotide sequence that encodes a copper-binding site of the amino acid sequence in (ii); and
 - (iv) a the nucleotide sequence that is complementary to (i) or (ii) or (iii).
68. (Withdrawn) The process of claim 67 further comprising expressing the introduced nucleic acid molecule to produce sense or antisense RNA therefrom.
69. (Withdrawn) The process of claim 67, wherein the nucleic acid molecule is introduced into the plant, cell, tissue or organ thereof by means of Agrobacterium-mediated transformation.
70. (Withdrawn) The process of claim 68, wherein the nucleic acid molecule is introduced into the plant, cell, tissue or organ thereof by means of Agrobacterium-mediated transformation.
71. (Withdrawn) The process of claim 67, wherein the nucleic acid molecule is introduced into the plant, cell, tissue or organ thereof by means of microparticle bombardment using a nucleic acid-coated microprojectile.

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72. (Withdrawn) The process of claim 68, wherein the nucleic acid molecule is introduced into the plant, cell, tissue or organ thereof by means of microparticle bombardment using a nucleic acid-coated microprojectile.
73. (Currently Amended - Withdrawn) A method of increasing the level of PPO activity in a plant, cell, tissue or organ thereof, the method comprising:
- (a) introducing into the plant, cell, tissue or organ thereof a nucleic acid molecule encoding a PPO polypeptide of lettuce comprising nucleotides in:
 - (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
 - (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
 - (iii) a nucleotide sequence that encodes a copper-binding site of the amino acid sequence of (ii), ~~or~~
 - ~~— (iv) a nucleotide sequence that is complementary to (i) or (ii) or (iii), and~~
 - (b) expressing the nucleic acid molecule to produce an enzymatically-active PPO polypeptide.
74. (Currently Amended - Withdrawn) A method of decreasing the level of PPO activity in a lettuce plant, cell, tissue or organ thereof, the method comprising introducing a nucleic acid molecule which hybridizes to a nucleic acid molecule in the lettuce plant, cell, tissue or organ thereof, comprising nucleotides in:
- (i) a the nucleotide sequence set forth in SEQ ID NO: 29;
 - (ii) a nucleotide sequence that encodes ~~an~~ the amino acid sequence set forth in SEQ ID NO: 30;
 - (iii) a nucleotide sequence that encodes a copper-binding

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site of the amino acid sequence in (ii); or
(iii) a the nucleotide sequence that is complementary to (i)
or (ii) or (iii).